POLYCHLORINATED BIPHENYLS (PCBs)

Also known as: Aroclor, Chlorinated Biphenyls, Kaneclor
Chemical reference number (CAS): 1336-36-3

WHAT ARE PCBs?

PCBs are a group of 209 different compounds. PCBs are man-made and have no smell. They are yellow, oily liquids that don't easily burn. There are no natural sources of PCBs.

Companies in the United States first made PCBs in 1929. They've been used as coolants in electrical equipment, metal-cutting oils, microscope lens oils, and in inks, dyes, and carbonless copy paper.

In 1977, the U.S. Environmental Protection Agency (EPA) banned the use of PCBs. The EPA was concerned about the harmful effects of PCBs. For example, PCBs can accumulate in the environment. PCBs may be present in old fluorescent light fixtures and parts of appliances made before 1978.

PCBs break down very slowly and can be carried long distances in the air, in rivers, lakes and oceans. PCBs can build up over time in the fat of people and animals. Recent studies found that most people have traces of PCBs in their body fat. PCBs can build-up in the food chain. For example, fish can have PCB levels in their fatty tissues that are much higher than the surrounding water.

HOW ARE PEOPLE EXPOSED TO PCBs

Drinking/Eating: For most people, eating fish or other seafood caught from polluted water is the main way in which they are exposed to PCBs.

Women who are pregnant or plan to have children should be especially cautious about eating contaminated fish. When people eat contaminated food over many years, PCBs can build up in their body fat. When people lose weight or breastfeed, their bodies use stored fat and put stored PCBs back into their blood. Babies may be exposed to PCBs in breast milk from mothers who often eat PCB contaminated fish.

Researchers have found high levels of PCBs in several types of fish, shellfish, marine mammals and waterfowl. In general, older animals living in polluted areas have the highest levels. State advisories are available for people who eat sport-caught fish and waterfowl. For more information, contact your regional Wisconsin Department of Natural Resources (DNR) office or call (608) 266-1877.

Touching: People can be exposed to PCBs in places where these chemicals were used, spilled, or thrown away. PCBs can be absorbed through skin during handling of the chemicals, contaminated soil or other contaminated items.

Breathing: Inhalation of PCB vapors or air is a minor source of contamination.

DO STANDARDS EXIST FOR REGULATING PCBs?

Food: The U.S. Food and Drug Administration (FDA) suggests not eating fish containing more than 2 parts per million of PCBs. This guidance assumes that a person eats two 8-ounce servings of fish per month, for every month of the year.

Water: The state and federal drinking water standard for PCBs are both set at 0.5 parts per billion (ppb). The Wisconsin groundwater standard is 0.03 ppb. Wisconsin's standard is to protect people against the possible cancer-causing effects of PCBs and the effects PCBs have on infants. We suggest you stop drinking water containing more than 0.03 ppb of PCBs.

WILL EXPOSURE TO PCBs RESULT IN HARMFUL HEALTH EFFECTS?

Researchers have found PCBs cause a number of harmful health effects. Exposure to high levels of PCBs, as might occur as a result of a chemical spill, can cause changes in the immune system and in liver function. The following health effects can occur after several years of exposure to PCBs:

Cancer: PCBs cause liver cancer in laboratory animals and may cause cancer in humans.

Reproductive Effects: Some limited animal and human studies suggest PCBs can effect reproduction and the development of unborn babies. Researchers have noted learning and memory problems in some children who were exposed to PCBs before birth.

Immunity: Animal studies show the immune system can be affected by PCBs.

Organ Systems: PCB exposure can cause liver damage.

In general, chemicals affect the same organ systems in all people who are exposed. However, the seriousness of the effects may vary from person to person.

Each person's reaction depends on several things, including individual health, heredity, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking.

It is also important to consider the length of exposure to the chemical; the amount of chemical exposure; and whether the chemical was inhaled, touched, or eaten.

CAN A MEDICAL TEST DETERMINE EXPOSURE TO PCBs?

Doctors can use blood tests to evaluate exposure to PCBs. This type of blood test is expensive and not always locally available. Testing can also detect PCBs in human fat or breast milk. Most testing of this type has been done for research purposes. Liver function tests may be helpful in determining damage from exposure.

Seek medical advice if you have any symptoms that you think may be related to exposure.

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to work exposure or emergency situations.

FOR MORE INFORMATION

- Poison Control Center, 800-222-1222
- Your local public health agency
- Division of Public Health, BEOH, 1 West Wilson Street, Rm. 150, Madison, WI 53701-2659, (608) 266-1120 or Internet: http://dhfs.wisconsin.gov/eh

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